

## **REMARKS/ARGUMENTS**

### **The Status of the Claims.**

Claims 26 to 37, 40 to 42, 44 to 48, 60 and 61 are pending with entry of this amendment. Claims are 1 to 25, 38, 39, 43 and 49 to 59 were previously cancelled. No claims are amended herein.

### **35 U.S.C. §103(a).**

Claims 26-37, 40-42, 44-48 and 60-61 were rejected under 35 U.S.C. §103(a) as allegedly obvious based on Cao (Angew. Chem. Int. Ed. 38 (24): 3692-3694 (1999)) in light of Bruchez (U.S. 6,274,323), optionally in combination with Skoog (Fundamentals of Analytical Chemistry, 6th Edition, page 606 (1992)), Weiss (WO00/55631) and/or Bruchez (Science 281: 2013-2016 (1998)). Applicants traverse.

A proper analysis under the recently reaffirmed *Graham v John Deere* standard demonstrates the non-obviousness of the invention. According to the Supreme Court in *KSR International Co v. Teleflex* (550 U.S. \_\_\_\_ (2007); 127 S. Ct. 1727, 1740-41, 82 USPQ2d 1385-1396 (US 2007)), the appropriate standard for analyzing questions of obviousness is that:

the scope and content of the prior art are determined, differences between the prior art and the claims at issue are analyzed and the level of ordinary skill in the pertinent art is resolved. Against this background the obviousness or non-obviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unresolved needs, failure of others, etc. might be utilized to give light to the circumstances surrounding the origin of the subject matter to be patented.

*Id.* quoting *Graham v. John Deere of Kansas City* 383 U.S. 1, 17-18.

The current Examination Guidelines (Federal Register 72: vol 195 (October 10, 2007)) note that the teaching-suggestion-motivation (TSM) test was *not* overturned by *KSR*. The Guidelines and *KSR* require the Office in an obviousness rejection to provide a statement as to why one of skill would have combined known elements. In addition, the bulk of well established case law, such as described in MPEP 2143.01 still applies. For example, where

the cited references teach away from the invention it is not obvious. The combination of references must teach all of the elements of the claims, the Office must provide a clear and articulated reason prompting one of skill to make the proposed combination (even where the outcome might be predictable), and there must exist in the art a reasonable expectation of success in any proposed combination. Here, the rejection fails each of these requirements, as applied to the *Graham* factors.

**The cited references do not teach a composition of two or more nanocrystal species having different excitation wavelengths and having different population emissions at the different characterized excitation wavelengths.** Applicants note that the Action does not state facts alleging a teaching of such compositions by the cited combination of references. That is, e.g., the "wherein clause" amended into claim 26 in the Response of January 25, 2008 is not clearly or fully addressed in the Action. No combination of cited references cures this defect in the rejections.

Even assuming the combined references inherently taught a mixed population of different nanocrystals (and they do not), such a mixed population of nanocrystals is not taught as providing, e.g., different emissions when alternately excited by different characterized excitation wavelengths. As noted, this has not been alleged. Further, compositions with such characteristics are not inherent in a theoretical mixed population of nanocrystals. For example, different nanocrystals can have the same characteristic excitation wavelengths. Moreover, mixtures of different nanocrystals can have similar combined emissions with alternate excitation with different excitation wavelengths.

Because this aspect of the claims is not taught or inherent in the cited art, the claims can not be considered obvious.

**The cited references do not teach a composition comprising two or more different nanocrystals.** The present Action continues to acknowledge that "Cao et al, does not disclose mixing the two crystal species into a single population ..." All the rejections depend on the statement, at page 5 of the Action, that "Bruchez et al. also discloses nanocrystal mixtures in column 8, lines 45-50." However, Applicants note that the alleged teaching of "nanocrystal mixtures" does not teach the "mixing the two crystal species into a single population", as required by the Offices stated rationale for the rejection.

The cited teaching of Bruchez '323, at column 8, line 44, actually says:

“As used in this specification and the appended claims, the singular forms ‘a,’ ‘an’ and ‘the’ include plural references unless the content clearly dictates otherwise. Thus, for example, reference to ‘a semiconductor nanocrystal’ includes a mixture of two or more such semiconductor nanocrystals, ...”

This standard patent application boilerplate is commonly inserted into applications to avoid the linguistic trap wherein discussion of "a" composition component is interpreted to exclude the concept of two or more of the same component from the scope of the claims or from the recognized disclosure. In this case, Bruchez was establishing that the phrase "a semiconductor nanocrystal" teaches and supports claims to two or more of the same nanocrystal, as is known in the art. In Bruchez '323, the concept of "a semiconductor nanocrystal" is not limited to a single nanocrystal particle sitting alone, but can include two or more of them (such).

At page 7 of the Action, the "use of multiple populations of nanocrystals is [allegedly] described in column 19" of Bruchez starting at line 23 (emphasis added):

"The above method can be used to prepare separate populations of semiconductor nanocrystals, wherein each population exhibits a different characteristic photoluminescence spectrum."

Again, this is not a teaching of a mixed population of nanocrystal species, but of separate species.

In the "Response to Arguments" section of the Action at page 11, Applicants believe the Office similarly misconstrues another statement of Bruchez '323. The Office argues that "[i]n fact, column 17, lines 1-17 of Bruchez et al. state that semiconductors can comprise ternary or quaternary mixtures of the species of nanocrystals listed in lines 10-15 of column 17 of Bruchez et al." In fact, the cited sentence is as follows:

"[E]xemplary materials for use as semiconductor nanocrystals in the biological and chemical assays include ... ZnS, ZnSe, ZnTe, CdS ... [etc.] Ge, and Si and ternary and quaternary mixtures thereof."

There is not any reference to "mixtures of species of nanocrystals" here. Unambiguously, the subject of the cited sentence is exemplary materials for use in semiconductors, and possible

mixtures of the materials. The term "mixtures thereof" refers to foregoing materials listing, not to species of nanocrystals.

Even if ambiguity were read into the teachings of Bruchez at column 8 or at column 17, it still would not constitute a teaching of the present specific claims. For example, an ambiguous teaching does not inherently teach the cited aspect because the cited characteristic does not necessarily flow from the statement. See, *Ex parte Levy*, 17 USPQ2d 1461, 1464, and *Continental Can Co. USA v. Monsanto Co.*, 20 USPQ2d 1746. That is, a mixture of nanocrystals can be of a single species, so is not necessarily a mixture of two or more different species. Further, even if two nanocrystal species had different compositions they would not necessarily have, e.g., different emissions. Even if alternate interpretations of reference statements were reasonable (and they are not) they would still not inherently teach the unobvious compositions of the claims.

Because the combination of Cao and Bruchez '323 do not teach all limitations of independent claim 23, one of skill in the art would not have found the claim obvious based on the combination of the references. Because dependent claims include all the limitations of the parent claim, they too are not obvious.

With regard to dependent claim 36, there are no factual allegations in the Action to form a basis for the rejection.

With regard to claim 41, determination of emissions for a species of nanocrystals in Cao does not inherently teach the claimed composition comprising a population subset of nanocrystals of predetermined emissions intensity. The allegation of the Action does not address all the limitations of the claimed composition.

With regard to claims 47 and 48, Applicants note that the cited teachings at column 23, line 50, are concerned with generation of polyclonal antibodies and have nothing to do with nanocrystals or barriers. There is no fact based allegation in the Action suggesting a teaching that nanocrystals of the cited art are actually or inherently detectable through a barrier.


### CONCLUSION

In view of the foregoing, Applicants believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the claims are deemed not to be in condition for allowance after consideration of this Response, a telephone interview with the Examiner is hereby requested. Please telephone the undersigned at (510) 769-3510 to schedule an interview.

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Respectfully submitted,



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Attachments:

- 1) A transmittal sheet; and,
- 2) A receipt indication postcard.